

REMARKS

The present application has been amended in response to the Examiner's Office Action to place the application in condition for allowance. Applicant, by the amendments presented above, has made a concerted effort to present claims which clearly define over the prior art of record, and thus to place this case in condition for allowance.

In the Office Action, the Examiner rejects claims 8-10 and 14 under 35 U.S.C. § 112, as failing to comply with the enabling requirement. Specifically, the Examiner asserts that the specification and drawings do not disclose the "intermediate interconnect liner comprised primarily of Aluminum." Applicant would like to respectfully point out that the liner is disclosed as being an Aluminum- 0.5 % copper alloy, which is an aluminum copper alloy comprised primarily of Aluminum. Applicant respectfully submits that it is analogous to disclosing a "nail" and claiming a "fastener", and that it is acceptable under current United States law and patent practice.

In addition, the Examiner rejects claims 1-14 under 35 U.S.C. § 102, as being anticipated by United States Patent No. 6,204,179 (McTeer). Applicant respectfully traverses. McTeer discloses a copper PVD technique to fill gaps (trenches and vias). This technique is not used as a modern art. The obvious problem is an inability to fill gaps with the high aspect ratio. To avoid this drawback, McTeer uses a high temperature (above 1000° C) copper reflow process, which could not be implemented without further modifications of the process flow. To decrease the reflow temperature, McTeer proposes to use a sacrificial aluminum wetting layer, which by

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interacting with the copper forms a CuAl alloy characterized by a lower melting point and makes it easy for the copper to fill a gap.

The present invention, on the other hand, proposes to use a standard dual-damascene copper process, which is a current state of the art process based on the electro-chemical deposition (plating). Applicant does not need any copper reflow steps. The present invention deposits an aluminum liner which is not going to create an alloy with the copper during the following process steps. It is simply impossible because of not enough temperature. The present invention does not have the high temperature steps like the reflow. The aluminum liners of the present invention will be inside interconnect lines and vias during a chip lifetime. Applicant has amended each of the independent claims to further distinguish the present invention from the prior art of record.


In view of the above amendments and remarks, Applicant respectfully submits that the claims are allowable over the prior art of record, and respectfully requests that the application be passed to issuance.

Should the present claims not be deemed adequate to effectively define the patentable subject matter, the Examiner is respectfully urged to call the undersigned attorney of record to discuss the claims in an effort to reach an agreement toward allowance of the present application.

Respectfully submitted,

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By: _____


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